

SEQUENCE LISTING



#15

<110> HYBRIGENICS

<120> SID nucleic acids and polypeptides selected from a pathogenic strain of the hepatitis C virus and applications thereof

<130> B4809A - JAZ

<140> U.S. 09/921,397

<141> 2001-08-02

<150> EP 00402225.7

<151> 2000-08-03

<160> 156

<170> PatentIn Ver. 2.1

<210> 1

<211> 50

<212> PRT

<213> Hepatitis C virus

<400> 1

Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
1 5 10 15

Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
20 25 30

Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
35 40 45

Pro Leu
50

<210> 2

<211> 35

<212> PRT

<213> Hepatitis C virus

<400> 2

Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
1 5 10 15

Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala
20 25 30

Gly Cys Ala
35

<210> 3

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 3

Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln
1 5 10 15
Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly
20 25 30
Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg
35 40 45
Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala
50 55 60
Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly
65 70 75

<210> 4

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 4

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
1 5 10 15
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn Thr
20 25 30
Arg Pro Pro Leu Gly
35

<210> 5

<211> 150

<212> PRT

<213> Hepatitis C virus

<400> 5

Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
1 5 10 15
Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
20 25 30
Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
35 40 45
Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
50 55 60
Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
65 70 75 80
Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
85 90 95
Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

100

105

110

Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys
 115 120 125

Leu Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr
 130 135 140

Arg Leu Gly Ala Val Gln
 145 150

<210> 6

<211> 28

<212> PRT

<213> Hepatitis C virus

<400> 6

Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
 1 5 10 15

Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val
 20 25

<210> 7

<211> 26

<212> PRT

<213> Hepatitis C virus

<400> 7

Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro
 1 5 10 15

Val Tyr Cys Phe Thr Pro Ser Pro Val Val
 20 25

<210> 8

<211> 54

<212> PRT

<213> Hepatitis C virus

<400> 8

Cys Val Val Ile Val Gly Arg Ile Val Leu Ser Gly Lys Pro Ala Ile
 1 5 10 15

Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu Phe Asp Glu Met Glu Glu
 20 25 30

Cys Ser Gln His Leu Pro Tyr Ile Glu Gln Gly Met Met Leu Ala Glu
 35 40 45

Gln Phe Lys Gln Lys Ala
 50

<210> 9
<211> 40
<212> PRT
<213> Hepatitis C virus

<400> 9
Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr
1 5 10 15
Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu
20 25 30
Pro Gln Asp Ala Val Ser Arg Thr
35 40

<210> 10
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 10
Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys Tyr
1 5 10 15
Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
20 25

<210> 11
<211> 27
<212> PRT
<213> Hepatitis C virus

<400> 11
Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro
1 5 10 15
Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
20 25

<210> 12
<211> 42
<212> PRT
<213> Hepatitis C virus

<400> 12
Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn
1 5 10 15
Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg
20 25 30
Leu Ile Val Phe Pro Asp Leu Gly Val Arg
35 40

<210> 13
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 13
Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
1 5 10 15
Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
20 25

<210> 14
<211> 33
<212> PRT
<213> Hepatitis C virus

<400> 14
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
1 5 10 15
Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro
20 25 30

Val

<210> 15
<211> 31
<212> PRT
<213> Hepatitis C virus

<400> 15
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
1 5 10 15
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe Val Leu Asn Asn
20 25 30

<210> 16
<211> 77
<212> PRT
<213> Hepatitis C virus

<400> 16
Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser
1 5 10 15
Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala
20 25 30
Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly
35 40 45

Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe Ala
50 55 60

Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
65 70 75

<210> 17
<211> 147
<212> PRT
<213> Hepatitis C virus

<400> 17
Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys
1 5 10 15

Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr
20 25 30

Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp
35 40 45

Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr
50 55 60

Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala
65 70 75 80

Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu
85 90 95

Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu
100 105 110

Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys
115 120 125

Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu
130 135 140

Gly Thr Thr
145

<210> 18
<211> 36
<212> PRT
<213> Hepatitis C virus

<400> 18
Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
1 5 10 15

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
20 25 30

Cys Glu Val Leu
35

<210> 19
<211> 28
<212> PRT
<213> Hepatitis C virus

<400> 19
Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly
1 5 10 15
Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp
20 25

<210> 20
<211> 45
<212> PRT
<213> Hepatitis C virus

<400> 20
Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg
1 5 10 15
Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe
20 25 30
Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile
35 40 45

<210> 21
<211> 86
<212> PRT
<213> Hepatitis C virus

<400> 21
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val
1 5 10 15
Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
20 25 30
Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro
35 40 45
Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly
50 55 60
Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
65 70 75 80
Gly Pro Gly Glu Gly Ala
85

<210> 22
<211> 43

<212> PRT
<213> Hepatitis C virus

<400> 22
Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
1 5 10 15
Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr
20 25 30
Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe
35 40

<210> 23
<211> 63
<212> PRT
<213> Hepatitis C virus

<400> 23
Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala
1 5 10 15
Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp
20 25 30
Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly Ala Leu Val Val
35 40 45
Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val Gly Pro Gly
50 55 60

<210> 24
<211> 29
<212> PRT
<213> Hepatitis C virus

<400> 24
Glu Arg Pro Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val
1 5 10 15
Pro Ala Lys Ser Val Cys Gly Pro Val Tyr Cys Phe Thr
20 25

<210> 25
<211> 76
<212> PRT
<213> Hepatitis C virus

<400> 25
Arg Arg His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly
1 5 10 15
His Ile Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser
20 25 30

Pro Thr Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro Gln Ala
35 40 45

Ile Met Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile
50 55 60

Ala Tyr Phe Ser Met Val Gly Asn Trp Ala Lys Val
65 70 75

<210> 26

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 26

Ala Ile Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His
1 5 10 15

Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu
20 25 30

Arg Asp Ile Trp Asp
35

<210> 27

<211> 47

<212> PRT

<213> Hepatitis C virus

<400> 27

Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly
1 5 10 15

Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp
20 25 30

Ser Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr
35 40 45

<210> 28

<211> 53

<212> PRT

<213> Hepatitis C virus

<400> 28

Leu Pro Ala Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu
1 5 10 15

Glu Tyr Val Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly
20 25 30

Met Thr Thr Asp Asn Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu
35 40 45

Phe Phe Thr Glu Leu

<210> 29
 <211> 112
 <212> PRT
 <213> Hepatitis C virus

<400> 29

Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	Ala	Ile	Pro	Leu	Glu	Val	Ile	Lys
1				5					10					15	
Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser	Lys	Lys	Lys	Cys	Asp	Glu
			20					25					30		
Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu	Gly	Ile	Asn	Ala	Val	Ala	Tyr	Tyr
	35						40					45			
Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	Pro	Thr	Ser	Gly	Asp	Val	Val	Val
	50					55					60				
Val	Ser	Thr	Asp	Ala	Leu	Met	Thr	Gly	Phe	Thr	Gly	Asp	Phe	Asp	Ser
	65				70				75					80	
Val	Ile	Asp	Cys	Asn	Thr	Cys	Val	Thr	Gln	Thr	Val	Asp	Phe	Ser	Leu
			85						90					95	
Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr	Thr	Thr	Leu	Pro	Gln	Asp	Ala	Val
			100					105					110		

<210> 30
 <211> 54
 <212> PRT
 <213> Hepatitis C virus

<400> 30

Val	Cys	Ala	Ala	Ile	Leu	Arg	Arg	His	Val	Gly	Pro	Gly	Glu	Gly	Ala
1				5					10					15	
Val	Gln	Trp	Met	Asn	Arg	Leu	Ile	Ala	Phe	Ala	Ser	Arg	Gly	Asn	His
			20					25					30		
Val	Ser	Pro	Thr	His	Tyr	Val	Pro	Glu	Ser	Asp	Ala	Ala	Ala	Arg	Val
			35				40					45			
Thr	Ala	Ile	Leu	Ser	Ser										
			50												

<210> 31
 <211> 102
 <212> PRT
 <213> Hepatitis C virus

<400> 31

Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr
1 5 10 15

Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly
20 25 30

Val Leu Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala
35 40 45

Arg Ala Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val
50 55 60

Cys Gly Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu
65 70 75 80

Asp Ala Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser
85 90 95

Ala Pro Pro Gly Asp Pro
100

<210> 32

<211> 79

<212> PRT

<213> Hepatitis C virus

<400> 32

Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys
1 5 10 15

Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala
20 25 30

Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly
35 40 45

Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn
50 55 60

Ser Val Trp Lys Asp Leu Glu Asp Ser Val Thr Pro Ile Asp
65 70 75

<210> 33

<211> 61

<212> PRT

<213> Hepatitis C virus

<400> 33

Thr Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr
1 5 10 15

Thr Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg
20 25 30

Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu
35 40 45

Arg Pro Ser Gly Met Phe Asp Ser Ser Val Leu Cys Glu
50 55 60

<210> 34

<211> 77

<212> PRT

<213> Hepatitis C virus

<400> 34

Val Leu Asp Ser His Tyr Gln Asp Val Leu Lys Glu Val Lys Ala Ala
1 5 10 15

Ala Ser Lys Val Lys Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser
20 25 30

Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys
35 40 45

Asp Val Arg Cys His Ala Arg Lys Ala Val Ala His Ile Asn Ser Val
50 55 60

Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro Ile Asp
65 70 75

<210> 35

<211> 26

<212> PRT

<213> Hepatitis C virus

<400> 35

Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly
1 5 10 15

Pro Val Tyr Cys Phe Thr Pro Ser Pro Val
20 25

<210> 36

<211> 37

<212> PRT

<213> Hepatitis C virus

<400> 36

Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro Tyr Cys
1 5 10 15

Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
20 25 30

Cys Gly Pro Val Tyr
35

<210> 37

<211> 35
<212> PRT
<213> Hepatitis C virus

<400> 37
Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu
1 5 10 15
Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp
20 25 30
Ile Cys Glu
35

<210> 38
<211> 25
<212> PRT
<213> Hepatitis C virus

<400> 38
Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr Pro
1 5 10 15
Cys Ser Gly Ser Trp Leu Arg Asp Ile
20 25

<210> 39
<211> 152
<212> DNA
<213> Hepatitis C virus

<400> 39
cttgttgccg cgcaggggcc ctagattggg tgtgcgcgcg acgaggaaga cttccgagcg 60
gtcgcacact cgaggtagac gtcagcctat ccccaaggca cgtcggcccg agggcaggac 120
ctgggctcag cccgggtacc cttggcccct ct 152

<210> 40
<211> 106
<212> DNA
<213> Hepatitis C virus

<400> 40
tggcaggggg aagccaggca tctatagatt tgtggcaccg ggggagcgcc cctccggcat 60
gttcgactcg tccgtcctct gtgagtgcga tgacgcgggc tgtgct 106

<210> 41
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 41
taacaccaac cgtcggccac aggacgtcaa gttcccggtt ggcggtcaga tcgttggtgg 60
agtttacttg ttgccgcgca ggggccctag attgggtgtg cgcgcgacga ggaagacttc 120
cgagcggtcg caacctcgag gtagacgtca gcctatcccc aaggcacgtc ggcccaggag 180
caggacctgg gtcagcccg ggtacccttg gccctctat ggcaatgagg gttg 234

<210> 42
<211> 114
<212> DNA
<213> Hepatitis C virus

<400> 42
tcccagcccc gtggtggtgg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60
tgcaaatgat acggatgtct tcgtccttaa caacaccagg ccaccgctgg gcaa 114

<210> 43
<211> 453
<212> DNA
<213> Hepatitis C virus

<400> 43
ctccaggact caacgccggg gcaggactgg cagggggaag ccaggcatct atagatttgt 60
ggcaccgggg gagcgccct cggcatgtt cgactcgtcc gtcctctgtg agtgctatga 120
cgcgggctgt gcttggtatg agtcacgcc cgccgagact acagttaggc tacgagcgta 180
catgaacacc ccggggcttc ccgtgtgcca ggaccatctt gaattttggg agggcgtctt 240
tacgggcctc actcatatag atgcccactt tttatcccag acaaagcaga gtggggagaa 300
ctttccttac ctggtagcgt accaagccac cgtgtgcgct agggctcaag cccctcccc 360
atcgtgggac cagatgtgga agtgtttgat ccgccttaaa cccaccctcc atgggccaac 420
accctgtcta tacagactgg gcgctgttca gaa 453

<210> 44
<211> 85
<212> DNA
<213> Hepatitis C virus

<400> 44
tcccagcccc gtggtggtgg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60
tgcaaatgat acggatgtct tcgtc 85

<210> 45
<211> 80
<212> DNA
<213> Hepatitis C virus

<400> 45
ccctccaaga ccttggtggca ttgtgcccgc aaagagcgtg tgtggcccgg tatattgctt 60
cactcccagc cccgtggtgg 80

<210> 46
<211> 165
<212> DNA
<213> Hepatitis C virus

<400> 46
ctgcgtggtc atagtgggca ggatcgtctt gtccgggaag ccggcaatta tacctgacag 60
ggaggttctc taccaggagt tcgatgagat ggaagagtgc tctcagcact taccgtacat 120
cgagcaagg atgatgctcg ctgagcagtt caagcagaag gccct 165

<210> 47
<211> 123

<212> DNA
<213> Hepatitis C virus

<400> 47
cggcgacttc gactctgtga tagactgcaa cacgtgtgtc actcagacag tcgatttcag 60
ccttgaccct acctttacca ttgagacaac cacgtcccc caggatgctg tctccaggac 120
tca 123

<210> 48
<211> 87
<212> DNA
<213> Hepatitis C virus

<400> 48
ggagcgcccc tccggcatgt tcgactcgtc cgtcctctgt gagtgtatg acgcgggctg 60
tgcttggtat gagctcacgc ccgccga 87

<210> 49
<211> 84
<212> DNA
<213> Hepatitis C virus

<400> 49
cagggggaag ccaggcatct atagatttgt ggcaccgggg gagcgcccct ccggcatggt 60
cgactcgtcc gtcctctgtg agtg 84

<210> 50
<211> 128
<212> DNA
<213> Hepatitis C virus

<400> 50
tctggaagac agtgtaacac caatagacac taccatcatg gccagaacg aggttttctg 60
cgttcagcct gagaaggggg gtcgtaagcc agctcgtctc atcgtgttcc ccgacctggg 120
cgtgcgcg 128

<210> 51
<211> 85
<212> DNA
<213> Hepatitis C virus

<400> 51
tcccaccggc agcggtgaaga gcaccaaggt cccggctgcg tacgcagccc agggctacaa 60
gggtgttggtg ctcaaccct ctgtt 85

<210> 52
<211> 102
<212> DNA
<213> Hepatitis C virus

<400> 52
cgaacgcccc tactgctggc actaccctcc aagaccttgt ggcattgtgc ccgcaaagag 60
cgtgtgtggc ccggtatatt gttcactcc cagccccgtg gt 102

<210> 53

<211> 95
<212> DNA
<213> Hepatitis C virus

<400> 53
tcccagcccc gtggtggtgg gaacgaccga caggtcgggc gcgcctacct acagctgggg 60
tgcaaatgat acggatgtct tcgtccttaa caaca 95

<210> 54
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 54
ggcgggagct cttgtagcat tcaagatcat gagcgggtgag gtccctcca cggaggacct 60
ggtcaatctg ctgcccggca tcctctcgcc tggagccctt gtagtcgggtg tggctcgcgc 120
agcaatactg cgccggcacg ttggcccggg cgagggggca gtgcaatgga tgaaccggct 180
aatagccttc gcctcccggg ggaaccatgt ttccccacg cactacgtgc cgga 234

<210> 55
<211> 442
<212> DNA
<213> Hepatitis C virus

<400> 55
tgagggtccag atcgtgtcaa ctgctaccca aaccttcctg gcaacgtgca tcaatgggggt 60
atgctggact gtctaccacg gggccggaac gaggaccatc gcatcaccca agggtcctgt 120
catccagatg tataccaatg tggaccaaga ccttggtggc tggcccgctc ctcaagggtc 180
ccgctcattg acaccctgta cctgcggctc ctcgaccctt tacctggtca cgaggcacgc 240
cgatgtcatt cccgtgcgcc ggcgagggtga tagcaggggt agcctgcttt cgccccggcc 300
catttcctac ttgaaaggct cctcgggggg tccgctgttg tgccccgcgg gacacgccgt 360
gggcctattc agggccgcgg tgtgcaccgc tggagtggct aaagcgggtg actttatccc 420
tgtggagaac ctagggacaa cc 442

<210> 56
<211> 111
<212> DNA
<213> Hepatitis C virus

<400> 56
tgtaacccag ctccctgaggc gactgcatca gtggataagc tcggagtgtg ccactccatg 60
ctccggttcc tggctaaggg acatctggga ctggatatgc gaggtgctga g 111

<210> 57
<211> 87
<212> DNA
<213> Hepatitis C virus

<400> 57
cgtgtgtggc ccggtatatt gcttcactcc cagccccgtg gtggtgggaa cgaccgacag 60
gtcggggcgcg cctacctaca gctgggg 87

<210> 58
<211> 137
<212> DNA
<213> Hepatitis C virus

<400> 58
cccgccttg cgagcttga gacaccgggc ccggagcgtc cgcgctaggc ttctgtccag 60
aggaggcagg gctgccatat gtggcaagta cctcttcaac tgggcagtaa gaacaaagct 120
caaactcact ccaatag 137

<210> 59
<211> 259
<212> DNA
<213> Hepatitis C virus

<400> 59
tactgccttt gtgggtgctg gcctagctgg cgccgccatc ggcagcgttg gactggggaa 60
ggcctcgtg gacattcttg cagggtatgg cgcgggcgtg gcgggagctc ttgtagcatt 120
caagatcatg agcggtgagg tcccctccac ggaggacctg gtcaatctgc tgcccggcat 180
cctctcgctt ggagcccttg tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 240
tgccccgggc gagggggca 259

<210> 60
<211> 130
<212> DNA
<213> Hepatitis C virus

<400> 60
tggcattgtg cccgcaaaga gcgtgtgtgg cccggtatat tgcttcactc ccagccccgt 60
ggtggtggga acgaccgaca ggtcggggcg gcctacctac agctgggggtg caaatgatac 120
ggatgtcttc 130

<210> 61
<211> 191
<212> DNA
<213> Hepatitis C virus

<400> 61
ggcctcgtg gacattcttg cagggtatgg cgcgggcgtg gcgggagctc ttgtagcatt 60
caagatcatg agcggtgagg tcccctccac ggaggacctg gtcaatctgc tgcccggcat 120
cctctcgctt ggagcccttg tagtcggtgt ggtctgcgca gcaatactgc gccggcacgt 180
tgccccgggc g 191

<210> 62
<211> 89
<212> DNA
<213> Hepatitis C virus

<400> 62
cgaacgcccc tactgctggc actaccctcc aagacctgtt ggcattgtgc ccgcaaagag 60
cgtgtgtggc ccggtatatt gcttcactc 89

<210> 63
<211> 230
<212> DNA
<213> Hepatitis C virus

<400> 63
caggcgccac tggacgacgc aagactgcaa ttgttctatc tatcccgccc atataacggg 60
tcatcgcatg gcatgggata tgatgatgaa ctggtcccct acggcagcgt tgggtgtagc 120

tcagctgctc cggatcccac aagccatcat ggacatgac gctgggtgctc actggggagt 180
cctggcgggc atagcgtatt tctccatggt ggggaactgg gcgaaggccc 230

<210> 64
<211> 113
<212> DNA
<213> Hepatitis C virus

<400> 64
tgccatactc agcagcctca ctgtaaccca gctcctgagg cgactgcac agtggataag 60
ctcggagtgt accactccat gctccgggtc ctggctaagg gacatctggg act 113

<210> 65
<211> 142
<212> DNA
<213> Hepatitis C virus

<400> 65
tgtctccagg actcaacgcc ggggcaggac tggcaggggg aagccaggca tctatagatt 60
tgtggcaccg ggggagcgcc cctccggcat gttcgactcg tccgtcctct gtgagtgcta 120
tgacgcgggc tgtgcttggg at 142

<210> 66
<211> 162
<212> DNA
<213> Hepatitis C virus

<400> 66
ccttctcgcg ccgaactata agttcgcgct gtggaggggtg tctgcagagg aatacgtgga 60
gataaggcgg gtgggggact tccactacgt atcgggtatg actactgaca atcttaaag 120
cccgtgccag atcccatcgc ccgaattttt cacagaattg ga 162

<210> 67
<211> 337
<212> DNA
<213> Hepatitis C virus

<400> 67
cggagagatc ccttittacg gcaaggctat cccctcgag gtgatcaagg ggggaagaca 60
tctcatcttc tgccactcaa agaagaagtg cgacgagctc gccgcgaagc tggtcgcatt 120
gggcatcaat gccgtggcct actaccgagg tcttgacgtg tctgtcatcc cgaccagcgg 180
cgatgttgtc gtctgtctga ccgatgtct catgactggc tttaccggcg acttcgactc 240
tgtgatagac tgcaacacgt gtgtcactca gacagtcgat ttcagccttg accctacctt 300
taccattgag acaaccacgc tccccaggga tgctgtc 337

<210> 68
<211> 163
<212> DNA
<213> Hepatitis C virus

<400> 68
ggctctgcga gcaatactgc gccggcacgt tggcccgggc gagggggcag tgcaatggat 60
gaaccggcta atagccttcg cctcccgggg gaaccatgtt tccccacgc actacgtgcc 120
ggagagcgat gcagccgccc gcgtcactgc catactcage agc 163

<210> 69
<211> 309
<212> DNA
<213> Hepatitis C virus

<400> 69
ggccatcaag tccctcactg agaggcttta tgttgggggc cctcttacca attcaagggg 60
ggaaaactgc ggctaccgca ggtgccgcgc gagcggcgta ctgacaacta gctgtggtaa 120
caccctcact tgctacatca agggccgggc agcctgtcga gccgcagggc tccaggactg 180
caccatgctc gtgtgtggcg acgacttagt cgttatctgt gaaagtgcgg ggggccagga 240
ggacgcggcg agcctgagag ccttcacgga ggctatgacc aggtactccg ccccccccg 300
ggaccccc 309

<210> 70
<211> 240
<212> DNA
<213> Hepatitis C virus

<400> 70
actgcaagtt ctggacagcc attaccagga cgtgctcaag gaggtcaaag cagcggcgctc 60
aaaagtgaag gctaacttgc tatccgtaga ggaagcttgc agcctgacgc cccacattc 120
agccaaatcc aagtttggct atggggcaaa agacgtccgt tgccatgcc aagaggccgt 180
agccacatc aactccgtgt ggaaagacct tctggaagac agtgtaacac caatagacac 240

<210> 71
<211> 184
<212> DNA
<213> Hepatitis C virus

<400> 71
cactcagaca gtcgatttca gccttgaccc tacctttacc attgagacaa ccacgctccc 60
ccaggatgct gtctccagga ctcaacgccg gggcaggact ggcaggggga agccaggcat 120
ctatagattt gtggcaccgg gggagcgccc ctccggcatg ttcgactcgt ccgtcctctg 180
tgag 184

<210> 72
<211> 234
<212> DNA
<213> Hepatitis C virus

<400> 72
agttctggac agccattacc aggacgtgct caaggaggct aaagcagcgg cgtcaaaagt 60
gaaggctaac ttgctatccg tagaggaagc ttgcagcctg acgccccac attcagccaa 120
atccaagttt ggctatgggg caaaagacgt ccgttgccat gccagaaagg ccgtagccca 180
catcaactcc gtgtggaaag accttctgga agacagtgtg acaccaatag acac 234

<210> 73
<211> 80
<212> DNA
<213> Hepatitis C virus

<400> 73
ctaccctcca agaccttgtg gcattgtgcc cgcaaagagc gtgtgtggcc cggtatattg 60
cttcactccc agccccgtgg 80

<210> 74

<211> 112
<212> DNA
<213> Hepatitis C virus

<400> 74
tcctatcagt tatgccaacg gaagcggcct cgacgaacgc cctactgct ggcactaccc 60
tccaagacct tgtggcattg tgcccgcaaa gagcgtgtgt ggcccgggtat at 112

<210> 75
<211> 107
<212> DNA
<213> Hepatitis C virus

<400> 75
cactgtaacc cagctcctga ggcgactgca tcagtggata agctcggagt gtaccactcc 60
atgctccggt tcctggctaa gggacatctg ggactggata tgcgagg 107

<210> 76
<211> 78
<212> DNA
<213> Hepatitis C virus

<400> 76
gctcctgagg cgactgcac agtggataag ctcgagtggt accactccat gctccggttc 60
ctggctaagg gacatctg 78

<210> 77
<211> 103
<212> PRT
<213> Hepatitis C virus

<400> 77
Ala Cys Glu Cys Pro Gly Arg Ser Arg Arg Pro Cys Thr Met Ser Thr
1 5 10 15
Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro
20 25 30
Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly Gly Val Tyr
35 40 45
Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala Thr Arg Lys
50 55 60
Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys
65 70 75 80
Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp
85 90 95
Pro Leu Tyr Gly Asn Glu Gly
100

<210> 78
<211> 113
<212> PRT

<213> Hepatitis C virus

<400> 78

Met Ser Thr Asn Pro Lys Pro Gln Arg Lys Thr Lys Arg Asn Thr Asn
1 5 10 15
Arg Arg Pro Gln Asp Val Lys Phe Pro Gly Gly Gly Gln Ile Val Gly
20 25 30
Gly Val Tyr Leu Leu Pro Arg Arg Gly Pro Arg Leu Gly Val Arg Ala
35 40 45
Thr Arg Lys Thr Ser Glu Arg Ser Gln Pro Arg Gly Arg Arg Gln Pro
50 55 60
Ile Pro Lys Ala Arg Arg Pro Glu Gly Arg Thr Trp Ala Gln Pro Gly
65 70 75 80
Tyr Pro Trp Pro Leu Tyr Gly Asn Glu Gly Cys Gly Trp Ala Gly Trp
85 90 95
Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Thr Asp Pro
100 105 110
Arg

<210> 79

<211> 114

<212> PRT

<213> Hepatitis C virus

<400> 79

Ala Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Arg Glu Gly Asn
1 5 10 15
Ala Ser Arg Cys Trp Val Ala Val Thr Pro Thr Val Ala Thr Arg Asp
20 25 30
Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His Ile Asp Leu Leu Val
35 40 45
Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys Gly
50 55 60
Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe Ser Pro Arg Arg His
65 70 75 80
Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile Thr
85 90 95
Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr Ala
100 105 110
Ala Leu

<210> 80
<211> 91
<212> PRT
<213> Hepatitis C virus

<400> 80
Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala Gly Arg Thr
1 5 10 15
Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys Gln Asn Ile
20 25 30
Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser Thr Ala Leu
35 40 45
Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly Leu Phe Tyr
50 55 60
Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala Ser Cys
65 70 75 80
Arg Arg Leu Thr Asp Phe Ala Gln Gly Trp Gly
85 90

<210> 81
<211> 176
<212> PRT
<213> Hepatitis C virus

<400> 81
Trp Gly Pro Ile Ser Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro
1 5 10 15
Tyr Cys Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys
20 25 30
Ser Val Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val
35 40 45
Gly Thr Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn
50 55 60
Asp Thr Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn
65 70 75 80
Trp Phe Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys
85 90 95
Gly Ala Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu
100 105 110
Cys Pro Thr Asp Cys Phe Arg Lys His Pro Glu Ala Thr Tyr Ser Arg
115 120 125
Cys Gly Ser Gly Pro Trp Ile Thr Pro Arg Cys Met Val Asp Tyr Pro
130 135 140
Tyr Arg Leu Trp His Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys
145 150 155 160

Val Arg Met Tyr Val Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys
165 170 175

<210> 82
<211> 96
<212> PRT
<213> Hepatitis C virus

<400> 82
Trp His Tyr Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val
1 5 10 15
Cys Gly Pro Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr
20 25 30
Thr Asp Arg Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn Asp Thr
35 40 45
Asp Val Phe Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn Trp Phe
50 55 60
Gly Cys Thr Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala
65 70 75 80
Pro Pro Cys Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu Cys Pro
85 90 95

<210> 83
<211> 278
<212> PRT
<213> Hepatitis C virus

<400> 83
Ala Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg
1 5 10 15
Gly Gln Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly
20 25 30
Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly
35 40 45
Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln
50 55 60
Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu
65 70 75 80
Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly
85 90 95

Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr
 100 105 110
 Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg
 115 120 125
 Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr
 130 135 140
 Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly
 145 150 155 160
 Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly
 165 170 175
 Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala
 180 185 190
 Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro Val
 195 200 205
 Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser
 210 215 220
 Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala
 225 230 235 240
 Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala
 245 250 255
 Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu
 260 265 270
 Gly Phe Gly Ala Tyr Met
 275

<210> 84
 <211> 158
 <212> PRT
 <213> Hepatitis C virus

<400> 84
 Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile
 1 5 10 15
 Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly
 20 25 30
 His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala
 35 40 45
 Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg
 50 55 60
 Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser
 65 70 75 80
 Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr

85

90

95

Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu
 100 105 110
 Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys
 115 120 125
 Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr
 130 135 140
 Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu
 145 150 155

<210> 85

<211> 263

<212> PRT

<213> Hepatitis C virus

<400> 85

Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Ile Ser Tyr Leu Lys
 1 5 10 15
 Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ala Gly His Ala Val Gly
 20 25 30
 Leu Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp
 35 40 45
 Phe Ile Pro Val Glu Asn Leu Gly Thr Thr Met Arg Ser Pro Val Phe
 50 55 60
 Thr Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala
 65 70 75 80
 His Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala
 85 90 95
 Ala Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val
 100 105 110
 Ala Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val
 115 120 125
 Asp Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro
 130 135 140
 Ile Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser
 145 150 155 160
 Gly Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp
 165 170 175
 Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr
 180 185 190
 Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser
 195 200 205

Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr
 210 215 220

Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys
 225 230 235 240

Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu
 245 250 255

Leu Ala Ala Lys Leu Val Ala
 260

<210> 86
 <211> 194
 <212> PRT
 <213> Hepatitis C virus

<400> 86
 Asp Asn Ser Ser Pro Pro Ala Val Pro Gln Ser Phe Gln Val Ala His
 1 5 10 15

Leu His Ala Pro Thr Gly Ser Gly Lys Ser Thr Lys Val Pro Ala Ala
 20 25 30

Tyr Ala Ala Gln Gly Tyr Lys Val Leu Val Leu Asn Pro Ser Val Ala
 35 40 45

Ala Thr Leu Gly Phe Gly Ala Tyr Met Ser Lys Ala His Gly Val Asp
 50 55 60

Pro Asn Ile Arg Thr Gly Val Arg Thr Ile Thr Thr Gly Ser Pro Ile
 65 70 75 80

Thr Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ser Gly
 85 90 95

Gly Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ser Thr Asp Ala
 100 105 110

Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala
 115 120 125

Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val
 130 135 140

Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu Ser Thr Thr Gly
 145 150 155 160

Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu Val Ile Lys Gly
 165 170 175

Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu
 180 185 190

Ala Ala

<210> 87
<211> 205
<212> PRT
<213> Hepatitis C virus

<400> 87
Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile Cys
1 5 10 15
Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr
20 25 30
Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala
35 40 45
Thr Ala Thr Pro Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu
50 55 60
Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala
65 70 75 80
Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His
85 90 95
Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly
100 105 110
Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro
115 120 125
Thr Ser Gly Asp Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly
130 135 140
Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr
145 150 155 160
Gln Thr Val Asp Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr
165 170 175
Thr Leu Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr
180 185 190
Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro
195 200 205

<210> 88
<211> 186
<212> PRT
<213> Hepatitis C virus

<400> 88
Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly Thr Val Leu Asp Gln
1 5 10 15
Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu Ala Thr Ala Thr Pro
20 25 30
Pro Gly Ser Val Thr Val Ser His Pro Asn Ile Glu Glu Val Ala Leu
35 40 45

Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile Pro Leu Glu
 50 55 60
 Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser Lys Lys Lys
 65 70 75 80
 Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile Asn Ala Val
 85 90 95
 Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr Ser Gly Asp
 100 105 110
 Val Val Val Val Ser Thr Asp Ala Leu Met Thr Gly Phe Thr Gly Asp
 115 120 125
 Phe Asp Ser Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp
 130 135 140
 Phe Ser Leu Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln
 145 150 155 160
 Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys
 165 170 175
 Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly
 180 185

<210> 89
 <211> 158
 <212> PRT
 <213> Hepatitis C virus

<400> 89
 Val Ile Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu
 1 5 10 15
 Asp Pro Thr Phe Thr Ile Glu Thr Thr Thr Leu Pro Gln Asp Ala Val
 20 25 30
 Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile
 35 40 45
 Tyr Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser
 50 55 60
 Ser Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu
 65 70 75 80
 Thr Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro
 85 90 95
 Gly Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe
 100 105 110
 Thr Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln
 115 120 125
 Ser Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys

130 135 140
 Ala Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp
 145 150 155

<210> 90
 <211> 129
 <212> PRT
 <213> Hepatitis C virus

<400> 90
 Arg Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser
 1 5 10 15
 Val Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr
 20 25 30
 Pro Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly
 35 40 45
 Leu Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr
 50 55 60
 Gly Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser
 65 70 75 80
 Gly Glu Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala
 85 90 95
 Arg Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu
 100 105 110
 Ile Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg
 115 120 125
 Leu

<210> 91
 <211> 51
 <212> PRT
 <213> Hepatitis C virus

<400> 91
 Thr Ser Thr Trp Val Leu Val Gly Gly Val Leu Ala Ala Leu Ala Ala
 1 5 10 15
 Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val Gly Arg Ile Val Leu
 20 25 30
 Ser Gly Lys Pro Ala Ile Ile Pro Asp Arg Glu Val Leu Tyr Gln Glu
 35 40 45
 Phe Asp Glu
 50

<210> 92
<211> 18
<212> PRT
<213> Hepatitis C virus

<400> 92
Ala Ala Leu Ala Ala Tyr Cys Leu Ser Thr Gly Cys Val Val Ile Val
1 5 10 15

Gly Arg

<210> 93
<211> 208
<212> PRT
<213> Hepatitis C virus

<400> 93
Phe Thr Ala Ala Val Thr Ser Pro Leu Thr Thr Gly Gln Thr Leu Leu
1 5 10 15

Phe Asn Ile Leu Gly Gly Trp Val Ala Ala Gln Leu Ala Ala Pro Gly
20 25 30

Ala Ala Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly
35 40 45

Ser Val Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly
50 55 60

Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu
65 70 75 80

Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser
85 90 95

Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg
100 105 110

His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile
115 120 125

Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro
130 135 140

Glu Ser Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr
145 150 155 160

Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys
165 170 175

Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile
180 185 190

Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met
195 200 205

<210> 94
<211> 207
<212> PRT
<213> Hepatitis C virus

<400> 94
Thr Ala Phe Val Gly Ala Gly Leu Ala Gly Ala Ala Ile Gly Ser Val
1 5 10 15
Gly Leu Gly Lys Val Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly
20 25 30
Val Ala Gly Ala Leu Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro
35 40 45
Ser Thr Glu Asp Leu Val Asn Leu Leu Pro Ala Ile Leu Ser Pro Gly
50 55 60
Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
65 70 75 80
Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe
85 90 95
Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
100 105 110
Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr
115 120 125
Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr
130 135 140
Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu
145 150 155 160
Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln
165 170 175
Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg Gly Tyr Arg Gly Val
180 185 190
Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys His Cys Gly Ala
195 200 205

<210> 95
<211> 225
<212> PRT
<213> Hepatitis C virus

<400> 95
Leu Val Asp Ile Leu Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu
1 5 10 15
Val Ala Phe Lys Ile Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu

20										25										30																																
Val	Asn	Leu	Leu	Pro	Ala	Ile	Leu	Ser	Pro	Gly	Ala	Leu	Val	Val	Gly																																					
		35					40					45																																								
Val	Val	Cys	Ala	Ala	Ile	Leu	Arg	Arg	His	Val	Gly	Pro	Gly	Glu	Gly																																					
		50				55					60																																									
Ala	Val	Gln	Trp	Met	Asn	Arg	Leu	Ile	Ala	Phe	Ala	Ser	Arg	Gly	Asn																																					
		65			70					75					80																																					
His	Val	Ser	Pro	Thr	His	Tyr	Val	Pro	Glu	Ser	Asp	Ala	Ala	Ala	Arg																																					
				85				90							95																																					
Val	Thr	Ala	Ile	Leu	Ser	Ser	Leu	Thr	Val	Thr	Gln	Leu	Leu	Arg	Arg																																					
			100				105					110																																								
Leu	His	Gln	Trp	Ile	Ser	Ser	Glu	Cys	Thr	Thr	Pro	Cys	Ser	Gly	Ser																																					
		115					120					125																																								
Trp	Leu	Arg	Asp	Ile	Trp	Asp	Trp	Ile	Cys	Glu	Val	Leu	Ser	Asp	Phe																																					
		130				135					140																																									
Lys	Thr	Trp	Leu	Lys	Ala	Lys	Leu	Met	Pro	Gln	Leu	Pro	Gly	Ile	Pro																																					
		145			150				155					160																																						
Phe	Val	Ser	Cys	Gln	Arg	Gly	Tyr	Arg	Gly	Val	Trp	Arg	Gly	Asp	Gly																																					
			165				170							175																																						
Ile	Met	His	Thr	Arg	Cys	His	Cys	Gly	Ala	Glu	Ile	Thr	Gly	His	Val																																					
		180					185							190																																						
Lys	Asn	Gly	Thr	Met	Arg	Ile	Val	Gly	Pro	Arg	Thr	Cys	Arg	Asn	Met																																					
		195					200					205																																								
Trp	Ser	Gly	Thr	Phe	Pro	Ile	Asn	Ala	Tyr	Thr	Thr	Gly	Pro	Cys	Thr																																					
		210				215					220																																									

Pro
225

<210> 96
 <211> 145
 <212> PRT
 <213> Hepatitis C virus

<400> 96
 Ala Gly Tyr Gly Ala Gly Val Ala Gly Ala Leu Val Ala Phe Lys Ile
 1 5 10 15
 Met Ser Gly Glu Val Pro Ser Thr Glu Asp Leu Val Asn Leu Leu Pro
 20 25 30
 Ala Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Val Cys Ala Ala
 35 40 45
 Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 50 55 60

Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ser Pro Thr
 65 70 75 80
 His Tyr Val Pro Glu Ser Asp Ala Ala Arg Val Thr Ala Ile Leu
 85 90 95
 Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile
 100 105 110
 Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile
 115 120 125
 Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys
 130 135 140
 Ala
 145

<210> 97
 <211> 54
 <212> PRT
 <213> Hepatitis C virus

<400> 97
 Ala Leu Val Val Gly Val Val Cys Ala Ala Ile Leu Arg Arg His Val
 1 5 10 15
 Gly Pro Gly Glu Gly Ala Val Gln Trp Met Asn Arg Leu Ile Ala Phe
 20 25 30
 Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
 35 40 45
 Asp Ala Ala Ala Arg Val
 50

<210> 98
 <211> 165
 <212> PRT
 <213> Hepatitis C virus

<400> 98
 Ala Ser Arg Gly Asn His Val Ser Pro Thr His Tyr Val Pro Glu Ser
 1 5 10 15
 Asp Ala Ala Ala Arg Val Thr Ala Ile Leu Ser Ser Leu Thr Val Thr
 20 25 30
 Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser Ser Glu Cys Thr Thr
 35 40 45
 Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp Asp Trp Ile Cys Glu
 50 55 60
 Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala Lys Leu Met Pro Gln
 65 70 75 80

Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 195 200 205
 Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 210 215 220
 Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 225 230 235 240
 Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 245 250 255
 Leu Ala Arg Gly Ser Pro Pro Ser Met Ala Ser Ser Ser Ala Ser Gln
 260 265 270
 Leu Ser Ala Pro Ser Leu Lys Ala Thr Cys Thr Ala Asn His Asp Ser
 275 280 285
 Pro Asp Ala Glu Leu Ile Glu Ala Asn Leu Leu Trp Arg Gln Glu Met
 290 295 300
 Gly Gly Asn Ile
 305

<210> 100
 <211> 283
 <212> PRT
 <213> Hepatitis C virus

<400> 100
 Leu Ser Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp
 1 5 10 15
 Ile Ser Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp
 20 25 30
 Ile Trp Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu
 35 40 45
 Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys
 50 55 60
 Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr
 65 70 75 80
 Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr
 85 90 95
 Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr
 100 105 110
 Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala
 115 120 125
 Pro Asn Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val
 130 135 140
 Glu Ile Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr

145		150		155		160									
Asp	Asn	Leu	Lys	Cys	Pro	Cys	Gln	Ile	Pro	Ser	Pro	Glu	Phe	Phe	Thr
				165					170					175	
Glu	Leu	Asp	Gly	Val	Arg	Leu	His	Arg	Phe	Ala	Pro	Pro	Cys	Lys	Pro
			180					185					190		
Leu	Leu	Arg	Glu	Glu	Val	Ser	Phe	Arg	Val	Gly	Leu	His	Glu	Tyr	Pro
		195					200					205			
Val	Gly	Ser	Gln	Leu	Pro	Cys	Glu	Pro	Glu	Pro	Asp	Val	Ala	Val	Leu
	210					215					220				
Thr	Ser	Met	Leu	Thr	Asp	Pro	Ser	His	Ile	Thr	Ala	Glu	Ala	Ala	Gly
225					230					235					240
Arg	Arg	Leu	Ala	Arg	Gly	Ser	Pro	Pro	Ser	Met	Ala	Ser	Ser	Ser	Ala
				245					250					255	
Ser	Gln	Leu	Ser	Ala	Pro	Ser	Leu	Lys	Ala	Thr	Cys	Thr	Ala	Asn	His
			260					265					270		
Asp	Ser	Pro	Asp	Ala	Glu	Leu	Ile	Glu	Ala	Asn					
		275					280								

<210> 101
 <211> 249
 <212> PRT
 <213> Hepatitis C virus

<400> 101
Ser Leu Thr Val Thr Gln Leu Leu Arg Arg Leu His Gln Trp Ile Ser
1 5 10 15
Ser Glu Cys Thr Thr Pro Cys Ser Gly Ser Trp Leu Arg Asp Ile Trp
20 25 30
Asp Trp Ile Cys Glu Val Leu Ser Asp Phe Lys Thr Trp Leu Lys Ala
35 40 45
Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe Val Ser Cys Gln Arg
50 55 60
Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile Met His Thr Arg Cys
65 70 75 80
His Cys Gly Ala Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg
85 90 95
Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro
100 105 110
Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro Leu Pro Ala Pro Asn
115 120 125
Tyr Lys Phe Ala Leu Trp Arg Val Ser Ala Glu Glu Tyr Val Glu Ile
130 135 140

Arg Arg Val Gly Asp Phe His Tyr Val Ser Gly Met Thr Thr Asp Asn
 145 150 155 160
 Leu Lys Cys Pro Cys Gln Ile Pro Ser Pro Glu Phe Phe Thr Glu Leu
 165 170 175
 Asp Gly Val Arg Leu His Arg Phe Ala Pro Pro Cys Lys Pro Leu Leu
 180 185 190
 Arg Glu Glu Val Ser Phe Arg Val Gly Leu His Glu Tyr Pro Val Gly
 195 200 205
 Ser Gln Leu Pro Cys Glu Pro Glu Pro Asp Val Ala Val Leu Thr Ser
 210 215 220
 Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Ala Ala Gly Arg Arg
 225 230 235 240
 Leu Ala Arg Gly Ser Pro Pro Ser Met
 245

<210> 102
 <211> 85
 <212> PRT
 <213> Hepatitis C virus

<400> 102
 Thr Trp Leu Lys Ala Lys Leu Met Pro Gln Leu Pro Gly Ile Pro Phe
 1 5 10 15
 Val Ser Cys Gln Arg Gly Tyr Arg Gly Val Trp Arg Gly Asp Gly Ile
 20 25 30
 Met His Thr Arg Cys His Cys Gly Ala Glu Ile Thr Gly His Val Lys
 35 40 45
 Asn Gly Thr Met Arg Ile Val Gly Pro Arg Thr Cys Arg Asn Met Trp
 50 55 60
 Ser Gly Thr Phe Pro Ile Asn Ala Tyr Thr Thr Gly Pro Cys Thr Pro
 65 70 75 80
 Leu Pro Ala Pro Asn
 85

<210> 103
 <211> 94
 <212> PRT
 <213> Hepatitis C virus

<400> 103
 Glu Ile Thr Gly His Val Lys Asn Gly Thr Met Arg Ile Val Gly Pro
 1 5 10 15
 Arg Thr Cys Arg Asn Met Trp Ser Gly Thr Phe Pro Ile Asn Ala Tyr
 20 25 30

<210> 106
<211> 137
<212> PRT
<213> Hepatitis C virus

<400> 106
Ser Trp Thr Gly Ala Leu Val Thr Pro Cys Ala Ala Glu Glu Gln Lys
1 5 10 15
Leu Pro Ile Asn Ala Leu Ser Asn Ser Leu Leu Arg His His Asn Leu
20 25 30
Val Tyr Ser Thr Thr Ser Arg Ser Ala Cys Gln Arg Gln Lys Lys Val
35 40 45
Thr Phe Asp Arg Leu Gln Val Leu Asp Ser His Tyr Gln Asp Val Leu
50 55 60
Lys Glu Val Lys Ala Ala Ala Ser Lys Val Lys Ala Asn Leu Leu Ser
65 70 75 80
Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys
85 90 95
Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val
100 105 110
Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr
115 120 125
Pro Ile Asp Thr Thr Ile Met Ala Lys
130 135

<210> 107
<211> 300
<212> PRT
<213> Hepatitis C virus

<400> 107
Ala Asn Leu Leu Ser Val Glu Glu Ala Cys Ser Leu Thr Pro Pro His
1 5 10 15
Ser Ala Lys Ser Lys Phe Gly Tyr Gly Ala Lys Asp Val Arg Cys His
20 25 30
Ala Arg Lys Ala Val Ala His Ile Asn Ser Val Trp Lys Asp Leu Leu
35 40 45
Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys Asn Glu
50 55 60
Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu
65 70 75 80
Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met Ala Leu
85 90 95

Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser Ser Tyr
 100 105 110
 Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val Gln Ala
 115 120 125
 Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys
 130 135 140
 Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile
 145 150 155 160
 Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile Lys Ser
 165 170 175
 Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser Arg Gly
 180 185 190
 Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu Thr Thr
 195 200 205
 Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala Ala Cys
 210 215 220
 Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly Asp Asp
 225 230 235 240
 Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser
 245 250 255
 Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly
 260 265 270
 Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser
 275 280 285
 Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys
 290 295 300

<210> 108

<211> 199

<212> PRT

<213> Hepatitis C virus

<400> 108

Glu Glu Ala Cys Ser Leu Thr Pro Pro His Ser Ala Lys Ser Lys Phe
 1 5 10 15
 Gly Tyr Gly Ala Lys Asp Val Arg Cys His Ala Arg Lys Ala Val Ala
 20 25 30
 His Ile Asn Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Val Thr Pro
 35 40 45
 Ile Asp Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Gln Pro
 50 55 60
 Glu Lys Gly Gly Arg Lys Pro Ala Arg Leu Ile Val Phe Pro Asp Leu
 65 70 75 80

Gly Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Val Val Ser Lys
 85 90 95
 Leu Pro Leu Ala Val Met Gly Ser Ser Tyr Gly Phe Gln Tyr Ser Pro
 100 105 110
 Gly Gln Arg Val Glu Phe Leu Val Gln Ala Trp Lys Ser Lys Lys Thr
 115 120 125
 Pro Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr
 130 135 140
 Glu Ser Asp Ile Arg Thr Glu Glu Ala Ile Tyr Gln Cys Cys Asp Leu
 145 150 155 160
 Asp Pro Gln Ala Arg Val Ala Ile Lys Ser Leu Thr Glu Arg Leu Tyr
 165 170 175
 Val Gly Gly Pro Leu Thr Asn Ser Arg Gly Glu Asn Cys Gly Tyr Arg
 180 185 190
 Arg Cys Arg Ala Ser Gly Val
 195

<210> 109
 <211> 260
 <212> PRT
 <213> Hepatitis C virus

<400> 109
 Leu Leu Glu Asp Ser Val Thr Pro Ile Asp Thr Thr Ile Met Ala Lys
 1 5 10 15
 Asn Glu Val Phe Cys Val Gln Pro Glu Lys Gly Gly Arg Lys Pro Ala
 20 25 30
 Arg Leu Ile Val Phe Pro Asp Leu Gly Val Arg Val Cys Glu Lys Met
 35 40 45
 Ala Leu Tyr Asp Val Val Ser Lys Leu Pro Leu Ala Val Met Gly Ser
 50 55 60
 Ser Tyr Gly Phe Gln Tyr Ser Pro Gly Gln Arg Val Glu Phe Leu Val
 65 70 75 80
 Gln Ala Trp Lys Ser Lys Lys Thr Pro Met Gly Phe Ser Tyr Asp Thr
 85 90 95
 Arg Cys Phe Asp Ser Thr Val Thr Glu Ser Asp Ile Arg Thr Glu Glu
 100 105 110
 Ala Ile Tyr Gln Cys Cys Asp Leu Asp Pro Gln Ala Arg Val Ala Ile
 115 120 125
 Lys Ser Leu Thr Glu Arg Leu Tyr Val Gly Gly Pro Leu Thr Asn Ser
 130 135 140
 Arg Gly Glu Asn Cys Gly Tyr Arg Arg Cys Arg Ala Ser Gly Val Leu

145		150		155		160
Thr Thr Ser Cys Gly Asn Thr Leu Thr Cys Tyr Ile Lys Ala Arg Ala						
		165		170		175
Ala Cys Arg Ala Ala Gly Leu Gln Asp Cys Thr Met Leu Val Cys Gly						
		180		185		190
Asp Asp Leu Val Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala						
		195		200		205
Ala Ser Leu Arg Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro						
		210		215		220
Pro Gly Asp Pro Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser						
		225		230		235
Cys Ser Ser Asn Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val						
		245		250		255
Tyr Tyr Leu Thr						
		260				

<210> 110
 <211> 127
 <212> PRT
 <213> Hepatitis C virus

<400> 110
Val Ile Cys Glu Ser Ala Gly Val Gln Glu Asp Ala Ala Ser Leu Arg
1 5 10 15
Ala Phe Thr Glu Ala Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro
20 25 30
Pro Gln Pro Glu Tyr Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn
35 40 45
Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr
50 55 60
Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg
65 70 75 80
His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro
85 90 95
Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu
100 105 110
Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr
115 120 125

<210> 111
 <211> 89
 <212> PRT
 <213> Hepatitis C virus

<400> 111

Val Ser Val Ala His Asp Gly Ala Gly Lys Arg Val Tyr Tyr Leu Thr
1 5 10 15
Arg Asp Pro Thr Thr Pro Leu Ala Arg Ala Ala Trp Glu Thr Ala Arg
20 25 30
His Thr Pro Val Asn Ser Trp Leu Gly Asn Ile Ile Met Phe Ala Pro
35 40 45
Thr Leu Trp Ala Arg Met Ile Leu Met Thr His Phe Phe Ser Val Leu
50 55 60
Ile Ala Arg Asp Gln Leu Glu Gln Ala Leu Asn Cys Glu Ile Tyr Gly
65 70 75 80
Ala Cys Tyr Ser Ile Glu Pro Leu Asp
85

<210> 112

<211> 73

<212> PRT

<213> Hepatitis C virus

<400> 112

Leu His Gly Leu Ser Ala Phe Ser Leu His Ser Tyr Ser Pro Gly Glu
1 5 10 15
Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly Val Pro Pro Leu
20 25 30
Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala Arg Leu Leu Ser
35 40 45
Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu Phe Asn Trp Ala
50 55 60
Val Arg Thr Lys Leu Lys Leu Thr Pro
65 70

<210> 113

<211> 63

<212> PRT

<213> Hepatitis C virus

<400> 113

Ser Pro Gly Glu Ile Asn Arg Val Ala Ala Cys Leu Arg Lys Leu Gly
1 5 10 15
Val Pro Pro Leu Arg Ala Trp Arg His Arg Ala Arg Ser Val Arg Ala
20 25 30
Arg Leu Leu Ser Arg Gly Gly Arg Ala Ala Ile Cys Gly Lys Tyr Leu
35 40 45
Phe Asn Trp Ala Val Arg Thr Lys Leu Lys Leu Thr Pro Ile Ala

<210> 114
 <211> 310
 <212> DNA
 <213> Hepatitis C virus

<400> 114
 tgcttgcgag tgccccggga ggtctcgtag accgtgcacc atgagcacga atcctaaacc 60
 tcaaagaaaa accaaacgta acaccaaccg tcgcccacag gacgtcaagt tcccgggtgg 120
 cggtcagatc gttggtggag tttacttgtt gccgcgcagg ggccctagat tgggtgtgcg 180
 cgcgacgagg aagacttccg agcggtcgca acctcgaggt agacgtcagc ctatcccca 240
 ggcacgtcgg cccgagggca ggacctgggc tcagcccggt tacccttggc ccctctatgg 300
 caatgagggg 310

<210> 115
 <211> 339
 <212> DNA
 <213> Hepatitis C virus

<400> 115
 atgagcacga atcctaaacc tcaaagaaaa accaaacgta acaccaaccg tcgcccacag 60
 gacgtcaagt tcccgggtgg cggtcagatc gttggtggag tttacttgtt gccgcgcagg 120
 ggccctagat tgggtgtgcg cgcgacgagg aagacttccg agcggtcgca acctcgaggt 180
 agacgtcagc ctatcccca ggacgtcgg cccgagggca ggacctgggc tcagcccggt 240
 tacccttggc ccctctatgg caatgagggg tcggggtggg cgggatgggt cctgtctccc 300
 cgtggctctc ggcctagctg gggcccccac gacccccg 339

<210> 116
 <211> 345
 <212> DNA
 <213> Hepatitis C virus

<400> 116
 tgccatcctg cacactccgg ggtgtgtccc ttgcgttcgc gagggtaacg cctcgaggtg 60
 ttgggtggcg gtgaccccca cgggtggccac cagggacggc aaactcccca caacgcagct 120
 tcgacgtcat atcgatctgc ttgtcgggag cgccaccctc tgctcggccc tctacgtggg 180
 ggacctgtgc gggctctgtt ttcttgttgg tcaactgtt accttctctc ccaggcgcca 240
 ctggacgacg caagactgca attgttctat ctatcccggc catataacgg gtcacgcgat 300
 ggcacgggat atgatgatga actggtcccc tacggcagcg ttggg 345

<210> 117
 <211> 276
 <212> DNA
 <213> Hepatitis C virus

<400> 117
 cggcgctcgac gcggaaaccc acgtcacggg gggaaatgcc ggccgcacca cggctggggt 60
 tggttggtctc cttacaccag gcgccaagca gaacatccaa ctgatcaaca ccaacggcag 120
 ttggcacatc aatagcacgg ccttgaattg caatgaaagc cttaacaccg gctgggttagc 180
 agggctcttc tatcaacaca aattcaactc ttcaggctgt cctgagaggt tggccagctg 240
 ccgacgcctt accgattttg cccaggggctg ggggtcc 276

<210> 118
 <211> 531

<212> DNA

<213> Hepatitis C virus

<400> 118

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ctgggggtcct atcagttatg ccaacggaag cggcctcgac gaacgcccct actgctggca 60
ctaccctcca agaccttggt gcattgtgcc cgcaaagagc gtgtgtggcc cggatatattg 120
cttcactccc agccccgtgg tgggtgggaac gaccgacagg tcggggcgcg ctacctacag 180
ctgggggtgca aatgatacgg atgtcttcgt ccttaacaac accaggccac cgctgggcaa 240
ttggttcggt tgtacctgga tgaactcaac tggattcacc aaagtgtgcg gagcgcccc 300
ttgtgtcatc ggaggggtgg gcaacaacac cttgctctgc cccactgatt gcttccgcaa 360
acatccggaa gccacatact ctcggtgcgg ctccggtccc tggattacac ccagggtgcat 420
ggtcgactac ccgtataggc tttggcacta tccttgtagc atcaattaca ccatattcaa 480
agtcaggatg tacgtgggag gggtcgagca caggctggaa gcggcctgca a 531
```

<210> 119

<211> 289

<212> DNA

<213> Hepatitis C virus

<400> 119

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ctggcactac cctccaagac cttgtggcat tgtgcccga aagagcgtgt gtggcccgg 60
atattgcttc actcccagcc ccgtgggtgg gggaaacgacc gacaggtcgg gcgcgcctac 120
ctacagctgg ggtgcaaatg atacggatgt cttcgtcctt aacaacacca ggccaccgct 180
gggcaattgg ttcggttgta cctggatgaa ctcaactgga ttcaccaaag tgtgcggagc 240
gcccccttgt gtcacggag ggggtgggcaa caacaccttg ctctgcccc 289
```

<210> 120

<211> 836

<212> DNA

<213> Hepatitis C virus

<400> 120

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gccgcgtgcg gtgacatcat caacggcttg cccgtctctg cccgtagggg ccaggagata 60
ctgcttggggc cagccgacgg aatgggtctc aaggggtgga ggttgctggc gcccatcacg 120
gcgtacgccc agcagacgag aggcctccta ggggtgtataa tcaccagcct gactggccgg 180
gacaaaaacc aagtggaggg tgaggtccag atcgtgtcaa ctgctacca aaccttcctg 240
gcaacgtgca tcaatggggg atgctggact gtctaccacg gggccggaac gaggaccatc 300
gcatcaccba agggtcctgt catccagatg tataccaatg tggaccaaga ccttgtgggc 360
tggcccgcct ctcaagggtc ccgctcattg acaccctgta cctgcggctc ctccggacct 420
tacctggtca cgaggcacgc cgatgtcatt cccgtgcgcc ggcgaggtga tagcaggggt 480
agcctgcttt cgccccggcc catttcctac ttgaaaggct cctcgggggg tccgctgttg 540
tgccccgcgg gacacgccgt gggcctattc agggccgcgg tgtgcaccgg tggagtggct 600
aaagcggtgg actttatccc tgtggagaac ctagggacaa ccatgagatc cccggtgttc 660
acggacaact cctctccacc agcagtgcc cagagcttcc aggtggccca cctgcatgct 720
cccaccggca gcgtaagag caccaaggct ccggtgcgt acgcagccca gggctacaag 780
gtgttggtgc tcaaccctc tgttgctgca acgctgggct ttggtgctta catgtc 836
```

<210> 121

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 121

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gcgcccgcga ggtgatagca ggggtagcct gctttcgccc cggccattt cctacttgaa 60
aggctcctcg gggggtccgc tgttggtgcc cgcgggacac gccgtgggcc tattcagggc 120
cgcggtgtgc acccggtggag tggctaaagc ggtggacttt atccctgtgg agaacctagg 180
gacaaccatg agatccccgg tgttcacgga caactcctct ccaccagcag tgccccagag 240
cttcagggtg gccacctgc atgctccac cggcagcggt aagagcacca aggtcccggc 300
```

tgcgtacgca	gcccagggct	acaaggtgtt	ggtgctcaac	ccctctgttg	ctgcaacgct	360
gggtcttggg	gcttacatgt	ccaaggccca	tgggggtgat	cctaataatca	ggaccggggg	420
gagaacaatt	accactggca	gccccatcac	gtactccacc	tacggcaagt	tcctt	475

<210> 122
 <211> 790
 <212> DNA
 <213> Hepatitis C virus

<400> 122						
tgatagcagg	ggtagcctgc	tttcgccccg	gcccatttcc	tacttgaaaag	gtcctctcggg	60
gggtccgctg	ttgtgccccg	cgggacacgc	cgtgggccta	ttcagggccg	cgggtgtgcac	120
ccgtggagtg	gctaaagcgg	tggactttat	ccctgtggag	aacctaggga	caaccatgag	180
atccccgggtg	ttcacggaca	actcctctcc	accagcagtg	ccccagagct	tccaggtggc	240
ccacctgcat	gctccaccg	gcagcggtaa	gagcaccaag	gtcccggctg	cgtacgcagc	300
ccagggctac	aagggtgttg	tgctcaaccc	ctctgttgct	gcaacgctgg	gctttggtgc	360
ttacatgtcc	aaggccccatg	gggttgatcc	taatatacagg	accgggggtga	gaacaattac	420
cactggcagc	cccatcacgt	actccaccta	cggcaagttc	cttgccgacg	gcgggtgctc	480
aggaggtgct	tatgacataa	taatttgtga	cgagtgccac	tccacggatg	ccacatccat	540
cttgggcatac	ggcactgtcc	ttgaccaagc	agagactgcg	ggggcgagac	tggttgtgct	600
cgccactgct	acccctccgg	gctccgtcac	tgtgtcccat	cctaatacag	aggaggttgc	660
tctgtccacc	accggagaga	tcccccttta	cggcaaggct	atccccctcg	aggtgatcaa	720
ggggggaaga	catctcatct	tctgccactc	aaagaagaag	tgcgacgagc	tcgccgcgaa	780
gctggtcgca						790

<210> 123
 <211> 583
 <212> DNA
 <213> Hepatitis C virus

<400> 123						
ggacaactcc	tctccaccag	cagtgcacca	gagcttccag	gtggcccacc	tgcatgctcc	60
caccggcagc	ggtaagagca	ccaaggtccc	ggctgcgtac	gcagcccagg	gctacaaggt	120
gttggtgctc	aacccctctg	ttgctgcaac	gctgggcttt	ggtgcttaca	tgtccaaggc	180
ccatgggggtt	gatcctaata	tcaggaccgg	ggtgagaaca	attaccactg	gcagccccat	240
cacgtactcc	acctacggca	agttccttgc	cgacggcggg	tgctcaggag	gtgcttatga	300
cataataatt	tgtgacgagt	gccactccac	ggatgccaca	tccatcttgg	gcacgggcac	360
tgtccttgac	caagcagaga	ctgcgggggc	gagactgggt	gtgctcgcca	ctgctacccc	420
tccgggctcc	gtcactgtgt	cccataccta	catcgaggag	gttgctctgt	ccaccaccgg	480
agagatcccc	ttttacggca	aggctatccc	cctcgagggtg	atcaaggggg	gaagacatct	540
catcttctgc	cactcaaaga	agaagtgcga	cgagctcgcc	gcg		583

<210> 124
 <211> 617
 <212> DNA
 <213> Hepatitis C virus

<400> 124						
ccttgccgac	ggcgggtgct	caggaggtgc	ttatgacata	ataatttgtg	acgagtgccca	60
ctccacggat	gccacatcca	tcttgggcat	cggcactgtc	cttgaccaag	cagagactgc	120
gggggcgaga	ctggttgtgc	tcgccactgc	taccctccg	ggctccgtca	ctgtgtccca	180
tcctaacatc	gaggaggttg	ctctgtccac	caccggagag	atcccccttt	acggcaaggc	240
tatccccctc	gaggtgatca	agggggggaag	acatctcatc	ttctgccact	caaagaagaa	300
gtgcgacgag	ctcgccgcga	agctggctgc	attgggcata	aatgccgtgg	cctactaccg	360
cggctctgac	gtgtctgtca	tcccgaccag	cggcgatggt	gtcgtcgtgt	cgaccgatgc	420
tctccttgact	ggctttaccg	gcgacttcga	ctctgtgata	gactgcaaca	cgtgtgtcac	480
tcagacagtc	gatttcagcc	ttgaccctac	ctttaccatt	gagacaacca	cgctccccca	540
ggatgctgtc	tccaggactc	aacgccgggg	caggactggc	agggggaagc	caggcatcta	600

<210> 125

<211> 559

<212> DNA

<213> Hepatitis C virus

<400> 125

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tcctaacatc gaggaggttg ctctgtccac caccggagag atcccccttt acggcaaggc 180
tatccccctc gaggtgatca aggggggaag acatctcatc ttctgccact caaagaagaa 240
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cggctcttgac gtgtctgtca tcccgaccag cggcgatgtt gtcgtcgtgt cgaccgatgc 360
tctcatgact ggctttaccg gcgacttcga ctctgtgata gactgcaaca cgtgtgtcac 420
tcagacagtc gatttcagcc ttgaccctac ctttaccatt gagacaacca cgctcccca 480
ggatgctgtc tccaggactc aacgccgggg caggactggc agggggaagc caggcatcta 540
tagattttgtg gcaccgggg 559

```

<210> 126

<211> 475

<212> DNA

<213> Hepatitis C virus

<400> 126

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tgtgatagac tgcaacacgt gtgtcactca gacagtcgat ttcagccttg accctacctt 60
taccattgag acaaccacgc tccccagga tgctgtctcc aggactcaac gccggggcag 120
gactggcagg gggaagccag gcatctatag atttgtggca ccgggggagc gcccctccgg 180
catgttcgac tcgtccgtcc tctgtgagtg ctatgacgcg ggctgtgctt ggtatgagct 240
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gtgccaggac catcttgaat tttgggaggg cgtctttacg ggccctcactc atatagatgc 360
ccacttttta tcccagacaa agcagagtgg ggagaacttt ccttacctgg tagcgtacca 420
agccaccgtg tgcgctaggg ctcaagcccc tccccatcg tgggaccaga tgtgg 475

```

<210> 127

<211> 390

<212> DNA

<213> Hepatitis C virus

<400> 127

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tagattttgtg gcaccggggg agcgccctc cggcatgttc gactcgtccg tcctctgtga 60
gtgctatgac gcgggctgtg cttggtatga gctcacgccc gccgagacta cagttaggct 120
acgagcgtac atgaacaccc cggggcttcc cgtgtgccag gaccatcttg aattttggga 180
gggcgtcttt acgggcctca ctcatataga tgcccacttt ttatcccaga caaagcagag 240
tggggagaac tttccttacc tggtagcgta ccaagccacc gtgtgcgcta gggctcaagc 300
ccctcccca tcgtgggacc agatgtggaa gtgtttgatc cgccttaaac ccaccctcca 360
tgggccaaca cccctgctat acagactggg 390

```

<210> 128

<211> 155

<212> DNA

<213> Hepatitis C virus

<400> 128

```

acgagcacct ggggtgctcg tggcggcgtc ctggctgctc tggccgcgta ttgcctgtca 60
acaggctcg tggcatagt gggcaggatc gtcttgtccg ggaagccggc aattatacct 120
gacagggagg ttctctacca ggagttcgat gagat 155

```

<210> 129
<211> 56
<212> DNA
<213> Hepatitis C virus

<400> 129
ggctgctctg gccgcggtatt gcctgtcaac aggctgcgtg gtcatagtgg gcagga 56

<210> 130
<211> 625
<212> DNA
<213> Hepatitis C virus

<400> 130
ttttacagct gccgtcacca gccactaac cactggccaa accctcctct tcaacatatt 60
gggggggtgg gtggctgccc agctcgccgc ccccggtgcc gctactgcct ttgtgggtgc 120
tggcctagct ggccgcgccca tcggcagcgt tggactgggg aaggctctcg tggacattct 180
tgagggtat ggccgaggcg tggcgggagc tctttagca ttcaagatca tgagcgggtga 240
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tgtagtcggt gtggtctgcg cagcaatact gcgcggggcac gttggccccg gcgagggggc 360
agtgaatgg atgaaccggc taatagcctt cgcctccccg gggaaccatg tttccccac 420
gcactacgtg ccggagagcg atgcagccgc ccgcgtcact gccatactca gcagcctcac 480
tgtaaccag ctccctgaggc gactgcatca gtggataagc tcggagtgtga ccactccatg 540
ctccggttcc tggctaaggg acatctggga ctggatatgc gaggtgctga gcgactttaa 600
gacctggctg aaagccaagc tcatg 625

<210> 131
<211> 623
<212> DNA
<213> Hepatitis C virus

<400> 131
tactgccttt gtgggtgctg gcctagctgg cgccgccatc ggagcggtg gactggggaa 60
ggtcctcggt gacattcttg cagggtatgg cgcgggcggt gcgggagctc ttgtagcatt 120
caagatcatg agcggtgagg tccccctcac ggaggacctg gtcaatctgc tgcccgccat 180
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ggagtgtacc actccatgct ccggttcctg gctaaggagc atctgggact ggatatgcga 480
ggtgctgagc gactttaaga cctggctgaa agccaagctc atgccacaac tgccctggat 540
tccctttgtg tctgcccagc gcgggtatag gggggtctgg cgaggagacg gcattatgca 600
cactcgctgc cactgtggag ctg 623

<210> 132
<211> 678
<212> DNA
<213> Hepatitis C virus

<400> 132
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gatcatgagc ggtgaggtcc cctccacgga ggacctggtc aatctgctgc ccgccatcct 120
ctcgccctgga gccctttagc tcggtgtggt ctgcgcagca atactgcgcc ggcacgttgg 180
cccgggagcag ggggagctgc aatggatgaa ccggctaata gccttcgct cccgggggaa 240
ccatgtttcc ccacgcact acgtgccgga gagcgatgca gccgcccgcg tcaactgcat 300
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gtgtaccact	ccatgctccg	gttcctggct	aagggacatc	tgggactgga	tatgcgaggt	420
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ctttgtgtcc	tgccagcgcg	ggtatagggg	ggctctggcg	ggagacggca	ttatgcacac	540
tcgctgccac	tgtggagctg	agatcactgg	acatgtcaaa	aacgggacga	tgaggatcgt	600
cggctcctagg	acctgcagga	acatgtggag	tgggacgttc	cccattaacg	cctacaccac	660
gggcccctgt	actccct					678

<210> 133
 <211> 436
 <212> DNA
 <213> Hepatitis C virus

<400> 133	
tgcaggggtat	ggcgcgggcg tggcgggagc tcttgtagca ttcaagatca tgagcgggtga 60
ggtccctctc	acggaggacc tggcfaatct gctgcccgc atcctctcgc ctggagccct 120
tgtagtcggt	gtggtctgcg cagcaatact gcgccggcac gttggcccgg gcgagggggc 180
agtgcaatgg	atgaaccggc taatagcctt cgccctcccg gggaaccatg tttccccac 240
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tgtaacccag	ctcctgaggg gactgcatca gtggataagc tcggagtgtg ccactccatg 360
ctccggttcc	tggctaaggg acatctggga ctggatatgc gaggtgctga gcgactttaa 420
gacctggctg	aaagcc
	436

<210> 134
 <211> 164
 <212> DNA
 <213> Hepatitis C virus

<400> 134	
agcccttgta	gtcgggtgtgg tctgcgcagc aatactgcgc cggcacgttg gcccggggcga 60
gggggcagtg	caatggatga accggctaata agccttcgcg tcccggggga accatgtttc 120
ccccacgcac	tacgtgcgcg agagcgatgc agccgcccgc gtca 164

<210> 135
 <211> 496
 <212> DNA
 <213> Hepatitis C virus

<400> 135	
cgccctcccg	gggaaccatg tttccccac gcactacgtg ccggagagcg atgcagccgc 60
ccgcgtcact	gccatactca gcagcctcac tgtaaccag ctcctgaggg gactgcatca 120
gtggataagc	tcggagtgtg ccactccatg ctccggttcc tggctaaggg acatctggga 180
ctggatatgc	gaggtgctga gcgactttaa gacctggctg aaagccaagc tcatgccaca 240
actgcctggg	attccctttg tgtcctgccg gcgcgggtat aggggggtct ggcgaggaga 300
cggcattatg	cacactcgct gccactgtgg agctgagatc actggacatg tcaaaaacgg 360
gacgatgagg	atcgctgggc ctaggacctg caggaacatg tggagtggga cgttcccat 420
taacgcctac	accacggggc cctgtactcc ccttctcgcg ccgaactata agttcgcgct 480
gtggaggggtg	tctgca
	496

<210> 136
 <211> 926
 <212> DNA
 <213> Hepatitis C virus

<400> 136	
tacgtgcgcg	agagcgatgc agccgcccgc gtcactgccg tactcagcag cctcactgta 60
accagctcc	tgaggcgact gcatcagtgg ataagctcgg agtgtaccac tccatgctcc 120
ggttcctggc	taaggacat ctgggactgg atatgcgagg tgctgagcga ctttaagacc 180

tggctgaaag	ccaagctcat	gccacaactg	cctgggattc	cctttgtgtc	ctgccagcgc	240
gggtataggg	gggtctggcg	aggagacggc	attatgcaca	ctcgctgcca	ctgtggagct	300
gagatcactg	gacatgtcaa	aaacgggacg	atgaggatcg	tcggctcctag	gacctgcagg	360
aacatgtgga	gtgggacgtt	ccccattaac	gcctacacca	cgggcccctg	tactcccctt	420
cctgcgccga	actataagtt	cgcgctgtgg	aggggtgtctg	cagaggaata	cgtggagata	480
aggcgggtgg	gggacttcca	ctacgtatcg	ggtatgacta	ctgacaatct	taaatgcccc	540
tgccagatcc	catcgcccga	atttttcaca	gaattggacg	gggtgcgcct	acacaggttt	600
gcgcccctt	gcaagcccctt	gctgcgggag	gaggtatcat	tcagagtagg	actccacgag	660
tacccggtgg	ggtcgcaatt	accttgcgag	cccgaaccgg	acgtagccgt	gttgacgtcc	720
atgctcactg	atccctccca	tataacagca	gaggcggccg	ggagaagggt	ggcgagaggg	780
tcaccccctt	ctatggccag	ctcctcggt	agccagctgt	ccgctccatc	tctcaaggca	840
acttgaccg	ccaacatga	ctcccctgac	gccgagctca	tagaggctaa	cctcctgtgg	900
aggcaggaga	tgggcggcaa	catcac				926

<210> 137

<211> 850

<212> DNA

<213> Hepatitis C virus

<400> 137

actcagcagc	ctcactgtaa	cccagctcct	gaggcgactg	catcagtgga	taagctcgga	60
gtgtaccact	ccatgctccg	gttcctggct	aagggacatc	tgggactgga	tatgcgagg	120
gctgagcgac	tttaagacct	ggctgaaagc	caagctcatg	ccacaactgc	ctgggattcc	180
ctttgtgtcc	tgccagcgcg	ggtatagggg	ggtctggcga	ggagacggca	ttatgcacac	240
tcgctgccac	tgtggagctg	agatcactgg	acatgtcaaa	aacgggacga	tgaggatcgt	300
cggtcctagg	acctgcagga	acatgtggag	tgggacgttc	cccattaacg	cctacaccac	360
gggcccctgt	actccccttc	ctgcgccgaa	ctataagttc	gcgctgtgga	gggtgtctgc	420
agaggaatac	gtggagataa	ggcgggtggg	ggacttccac	tacgtatcgg	gtatgactac	480
tgacaatctt	aaatgcccgt	gccagatccc	atcgcccga	tttttcacag	aattggacgg	540
ggtgcgccta	cacaggtttg	cgcccccttg	caagcccctg	ctgcgggagg	aggtatcatt	600
cagagtagga	ctccacgagt	acccgggtgg	gtcgcaatta	ccttgcgagc	ccgaaccgga	660
cgtagccgtg	ttgacgtcca	tgtcactga	tccctcccat	ataacagcag	aggcgggccg	720
gagaagggtg	gcgagagggt	cacccccttc	tatggccagc	tcctcggtga	gccagctgtc	780
cgctccatct	ctcaaggcaa	cttgccaccg	caaccatgac	tcccctgacg	ccgagctcat	840
agaggctaac						850

<210> 138

<211> 749

<212> DNA

<213> Hepatitis C virus

<400> 138

cagcctcact	gtaaccacgc	tcttgaggcg	actgcatcag	tggataagct	cggagtgtac	60
cactccatgc	tccggttcct	ggctaaggga	catctgggac	tggatatgcg	aggtgctgag	120
cgactttaag	acctggctga	aagccaagct	catgccacaa	ctgcctggga	ttccctttgt	180
gtcctgccag	cgcggttata	ggggggtctg	gcgaggagac	ggcattatgc	acactcgctg	240
ccactgtgga	gctgagatca	ctggacatgt	caaaaacggg	acgatgagga	tcgtcggtcc	300
taggacctgc	aggaacatgt	ggagtgggac	gttccccatt	aacgcctaca	ccacggggcc	360
ctgtactccc	cttcctgcgc	cgaactataa	gttcgcgctg	tggaggggtg	ctgcagagga	420
atacgtggag	ataaggcggg	tgggggactt	ccactacgta	tcgggtatga	ctactgacaa	480
tcttaaagtgc	ccgtgccaga	tcccctcgcc	cgaatttttc	acagaattgg	acggggtgct	540
cctacacagg	tttgccccc	cttgcaagcc	cttgctgcgg	gaggaggtat	cattcagagt	600
aggactccac	gagtaccggg	tggggctcgca	attacctg	gagcccgaa	cggacgtagc	660
cgtgttgacg	tccatgtca	ctgatccctc	ccatataaca	gcagaggcgg	ccggggagaag	720
gttggcgaga	gggtcacccc	cttctatgg				749

<210> 139

<211> 257

<212> DNA
<213> Hepatitis C virus

<400> 139
gacctggctg aaagccaagc tcatgccaca actgcctggg attccctttg tgtcctgcc 60
gcgcgggtat aggggggtct ggcgaggaga cggcattatg cacactcgct gccactgtgg 120
agctgagatc actggacatg tcaaaaacgg gacgatgagg atcgtcgggc ctaggacctg 180
caggaacatg tggagtggga cgttcccat taacgcctac accacgggcc cctgtactcc 240
ccttctgcg ccgaact 257

<210> 140
<211> 285
<212> DNA
<213> Hepatitis C virus

<400> 140
tgagatcact ggacatgtca aaaacgggac gatgaggatc gtcggtccta ggacctgcag 60
gaacatgtgg agtgggacgt tccccattaa cgcctacacc acggggcccct gtactcccct 120
tcctgcgccc aactataagt tcgcgctgtg gaggggtgtct gcagaggaat acgtggagat 180
aaggcgggtg ggggacttcc actacgtatc ggggatgact actgacaatc ttaaagtccc 240
gtgccagatc ccacgcgccg aatttttcac agaattggac ggggt 285

<210> 141
<211> 228
<212> DNA
<213> Hepatitis C virus

<400> 141
catagaggct aacctcctgt ggaggcagga gatgggcggc aacatcacca gggttgagtc 60
agagaacaaa gtggtgattc tggactcctt cgatccgctt gtggcagagg aggatgagcg 120
ggaggctctc gtacctgcag aaattctgcg gaagtctcgg agattcgccc gggcccctgcc 180
cgtctgggcg cggccggact acaaccccc gctagtagag acgtggaa 228

<210> 142
<211> 273
<212> DNA
<213> Hepatitis C virus

<400> 142
ccatggctgc ccgctaccac ctccacggtc cctcctgtg cctccgcctc ggaaaaagcg 60
tacggtggtc ctaccgaat caaccctatc tactgccttg gccgagcttg ccacaaaaag 120
ttttggcagc tcctcaactt ccggcattac gggcgacaat acgacaacat cctctgagcc 180
cgcccccttct ggetgcccc ccgactccga cgttgagtc tattcttcca tgccccccct 240
ggagggggag cctggggatc cggatctcag cga 273

<210> 143
<211> 412
<212> DNA
<213> Hepatitis C virus

<400> 143
ttcctggaca ggcgcactcg tcaccccgctg cgctgcggaa gaacaaaaac tgcccatcaa 60
cgcactgagc aactcgttgc tacgccatca caatctggtg tattccacca cttcacgcag 120
tgcttgccaa aggcagaaga aagtcacatt tgacagactg caagttctgg acagccatta 180
ccaggacgtg ctcaaggagg tcaaagcagc ggcgtcaaaa gtgaaggcta acttgctatc 240
cgtagaggaa gcttgagcc tgacgcccc acattcagcc aaatccaagt ttggctatgg 300
ggcaaaagac gtccgttgcc atgccagaaa ggcgtagcc cacatcaact ccgtgtggaa 360

agaccttctg gaagacagtg taacaccaat agacactacc atcatggcca ag

412

<210> 144

<211> 903

<212> DNA

<213> Hepatitis C virus

<400> 144

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ggctaacttg ctatccgtag aggaagcttg cagcctgacg ccccccacatt cagccaaatc 60
caagtttggc tatgggggcaa aagacgtccg ttgccatgcc agaaaggccg tagcccacat 120
caactccgtg tggaaaagacc ttctggaaga cagtgtaaaca ccaatagaca ctaccatcat 180
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tgataccgc tgttttgact ccacagtcac tgagagcgac atccgtacgg aggaggcaat 480
ttaccaatgt tgtgacctgg accccaagc ccgctggcc atcaagtccc tactgagag 540
gctttatgtt gggggccctc ttaccaattc aaggggggaa aactgcggct accgcagggtg 600
ccgcgcgagc ggcgactga caactagctg tggtaacacc ctcaactgtc acatcaaggc 660
ccgggcagcc tgtcgagccg cagggctcca ggactgcacc atgctcgtgt gtggcgacga 720
cttagtcgtt actgtgaaa gtgcgggggt ccaggaggac gcggcgagcc cctgtcgtt 780
cacggagggt atgaccaggt actccgcccc ccccggggac cccccacaac cagaatacga 840
cttgagctt ataacatcat gtcctccaa cgtgtcagtc gcccacgacg gcgctggaaa 900
gag
```

<210> 145

<211> 600

<212> DNA

<213> Hepatitis C virus

<400> 145

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agaggaagct tgcagcctga cgccccaca ttcagccaaa tccaagtttg gctatggggc 60
aaaagacgtc cgttgccatg ccagaaaggc cgtagccac atcaactccg tgtggaaaga 120
ccttctggaa gacagtgtaa caccaataga cactaccatc atggccaaga acgaggtttt 180
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cgtgatggga agctcctacg gattccaata ctaccagga cagcgggttg aattcctcgt 360
gcaagcgtgg aagtccaaga agaccccgat ggggttctcg tatgataccc gctgttttga 420
ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccat gttgtgacct 480
ggacccccaa gcccgcgtgg ccatcaagtc cctcactgag aggccttatg ttgggggccc 540
tcttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gcggcgact 600
```

<210> 146

<211> 781

<212> DNA

<213> Hepatitis C virus

<400> 146

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ccttctggaa gacagtgtaa caccaataga cactaccatc atggccaaga acgaggtttt 60
ctgcgttcag cctgagaagg ggggtcgtaa gccagctcgt ctcatcgtgt tccccgacct 120
gggcgtgcgc gtgtgcgaga agatggccct gtacgacgtg gttagcaagc tccccctggc 180
cgtgatggga agctcctacg gattccaata ctaccagga cagcgggttg aattcctcgt 240
gcaagcgtgg aagtccaaga agaccccgat ggggttctcg tatgataccc gctgttttga 300
ctccacagtc actgagagcg acatccgtac ggaggaggca atttaccat gttgtgacct 360
ggacccccaa gcccgcgtgg ccatcaagtc cctcactgag aggccttatg ttgggggccc 420
tcttaccaat tcaagggggg aaaactgcgg ctaccgcagg tgccgcgcga gcggcgact 480
gacaactagc tgtgtaaca ccctcacttg ctacatcaag gcccgggcag cctgtcgagc 540
cgcagggtc caggactgca ccatgctcgt gtgtggcgac gacttagtcg ttatctgtga 600
```

```

aagtgcggggg gtccaggagg acgcggcgag cctgagagcc ttcacggagg ctatgaccag 660
gtactccgcc ccccccgggg acccccccaca accagaatac gacttggagc ttataacatc 720
atgctcctcc aacgtgtcag tcgcccacga cggcgctgga aagaggggtc actaccttac 780
c                                                    781

```

```

<210> 147
<211> 382
<212> DNA
<213> Hepatitis C virus

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<400> 147
cgttatctgt gaaagtgcgg ggggtccagga ggacgcggcg agcctgagag ccttcacgga 60
ggctatgacc aggtactccg ccccccccg ggacccccca caaccagaat acgacttgga 120
gcttataaca tcatgctcct ccaacgtgtc agtcgcccac gacggcgctg gaaagagggg 180
ctactacctt acccgtgacc ctacaacccc cctcgcgaga gccgcgtggg agacagcaag 240
acacactcca gtcaattcct ggctaggcaa cataatcatg tttgccccca cactgtgggc 300
gaggatgata ctgatgaccc atttctttag cgtcctcata gccagggatc agcttgaaca 360
ggctcttaac tgtgagatct ac                                                    382

```

```

<210> 148
<211> 268
<212> DNA
<213> Hepatitis C virus

```

```

<400> 148
cgtgtcagtc gcccacgacg gcgctggaaa gaggggtctac taccttacct gtgaccctac 60
aacccccctc gcgagagccg cgtgggagac agcaagacac actccagtca attcctggct 120
aggcaacata atcatgtttg cccccacact gtgggcgagg atgatactga tgacccattt 180
ctttagcgtc ctcatagcca gggatcagct tgaacaggct cttaactgtg agatctacgg 240
agcctgctac tccatagaac cactggat                                                    268

```

```

<210> 149
<211> 222
<212> DNA
<213> Hepatitis C virus

```

```

<400> 149
actccatggc ctcagcgcat tttcactcca cagttactct ccagggtgaaa tcaatagggt 60
ggccgcagtc ctcagaaaac ttgggggtccc gcccttgcca gcttggagac accggggccc 120
gagcgtccgc gctaggcttc tgtccagagg aggcagggct gccatatgtg gcaagtacct 180
cttcaactgg gcagtaagaa caaagctcaa actcactcca at                                                    222

```

```

<210> 150
<211> 192
<212> DNA
<213> Hepatitis C virus

```

```

<400> 150
ctctccaggc gaaatcaata ggggtggccgc atgcctcaga aaacttgggg tcccggccctt 60
gcgagcttgg agacaccggg cccggagcgt ccgcgctagg cttctgtcca gaggaggcag 120
ggctgccata tgtggcaagt acctcttcaa ctgggcagta agaacaaagc tcaaactcac 180
tccaatagcg gc                                                    192

```

```

<210> 151
<211> 10
<212> DNA

```

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker
sequence

<400> 151
gggccacgaa

10

<210> 152

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: linker
sequence

<400> 152
ttcgtggccc ctg

13

<210> 153

<211> 138

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pP6 vector
sequence

<400> 153
ctagccatgg ccgcaggggc cgcggccgca ctagtgggga tccttaatta aagggccact 60
ggggccccc gtaccggcgt ccccggcgcc ggcgtgatca cccctaggaa ttaatttccc 120
ggtgaccccg ggggagct 138

<210> 154

<211> 128

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pB5 vector
sequence

<400> 154
catggccgca ggggccgcgg ccgcactagt ggggatcctt aattaaagg cactggggc 60
ccccggcgt ccccggcgcc ggcgtgatca cccctaggaa ttaatttccc ggtgaccccg 120
ggggagct 128

<210> 155

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 155
gcgtttggaa tcactacagg

20

<210> 156
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 156
cacgatgcac gttgaagtg

19